habitats in the Suisun Marsh/North San Francisco Bay Ecological Management Zone will help the recovery of this species by increasing habitat area.

Upland cover could be improved by providing incentives to farmers to allow natural vegetation to reclaim portions of the upland habitat adjacent to tidal wetlands.

Clapper rail habitat utilization in Suisun Marsh and the Napa Marshes suggest that a natural network of small tidal creeks which begin high in the marsh and grade down into large tidal sloughs and bays are essential habitat components for successful breeding populations. Improved habitat would also include water quality levels and other components necessary to support isopods, arthropods, mollusks, and insects on which clapper rails forage. These components could be provided by developing and implementing a program to reduce the level of toxins that adversely affect clapper rail populations in the Bay-Delta. Clapper rail breeding success could be improved by reducing the adverse effects of boat wakes on nests during the February through August breeding period. Restoring high-quality clapper rail habitat would also reduce the adverse effects of predation by non-native species by creating habitat conditions that are more favorable for rails and less favorable for predators.

Improved habitat would also include water quality levels and other components necessary to support isopods, arthropods, mollusks, and insects on which clapper rails forage. These components could be provided by developing and implementing a program to reduce the level of toxins that adversely affect clapper rail populations in the Bay-Delta. Restoring high-quality clapper rail habitat would also reduce the adverse effects of predation by non-native species by creating habitat conditions that are more favorable for rails and less favorable for predators.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Wetland restoration and management programs that would improve habitat for the clapper rail include:

- the Agricultural Stabilization and Conservation Service's Wetland Reserve Program,
- the Wildlife Conservation Board's Inland Wetlands Conservation Program,
- implementing recommendations of the Goals Project (1999) regarding restoration of large areas of tidal marsh in all subregions of the Bay,
- protect remaining tidal slough habitats supporting pickleweed, cordgrass, bulrushes, and cattails,
- maintain adjacent higher elevation wetland and upland habitat to provide cover during high tides and floods,
- the Suisun Marsh Protection Plan, and
- ongoing management of State and federal wildlife refuges and private duck clubs.

Restoration efforts will be conducted in cooperation with agencies or organizations with responsibility or authority for restoring wetland and aquatic habitats, including:

- the California Department of Fish and Game,
- California Department of Water Resources,
- U.S. Fish and Wildlife Service (USFWS),
- California Coastal Conservancy,
- San Francisco Bay Conservation and Development Commission,
- San Francisco Bay Joint Venture,
- San Francisco Bay Regional Water Quality Control Board,
- U.S. Army Corps of Engineers, and
- Delta Protection Commission.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Improvement of the population of clapper rail in the Bay is integrally linked with wetland and riparian habitat restoration, and water quality (contaminants) improvement.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Maintain the current distribution and existing populations of the California clapper rail, and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

LONG-TERM OBJECTIVE: Have self-sustaining populations of California clapper rail located throughout their original native range in tidal marshes of the Bay-Delta system.

SHORT-TERM OBJECTIVE: Protect existing populations of the species and restore habitat to provide sites for expansion of present populations.

RATIONALE: The California clapper rail requires tidal salt marshes for all phases of its life cycle. Its populations have declined as these marshes have been eliminated and fragmented, permitting easier access of non-native predators (e.g., house cats, red fox), people, and other intruders to their nesting and high-tide roosting areas. These birds should recover as tidal salt marshes are allowed to re-expand and as marsh restoration efforts proceed.

STAGE 1 EXPECTATIONS: Substantial progress will have been made in protecting habitat for all existing populations and management plans will be in place to further improve existing habitats for clapper rails. Potential additional restoration sites will have been identified.

RESTORATION ACTIONS

The general target is to increase the numbers of breeding pairs of clapper rails in the Bay-Delta. The U.S. Fish and Wildlife Service is currently revising the recovery plan for the clapper rail, which will establish population recovery goals.

The following general programmatic actions will contribute to the recovery of the California clapper rail:

- restore saline and brackish wetland habitat in the Bay,
- protect remaining tidal slough habitats supporting pickleweed, cordgrass, bulrushes, and cattails, especially in areas adjacent to high marsh meadows characterized by pickleweed-saltgrass plant associations,
- improve water quality of Bay marshes,
- reduce the adverse effects of boat wakes on nests during the breeding period,
- develop and implement predator control programs,
- maintain adjacent higher elevation wetland and upland habitat to provide cover during high tides and floods, and
- improve upland cover by providing incentives to farmers to allow natural vegetation to reclaim portions of the upland habitat adjacent to tidal wetlands.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve species habitat or population targets.

- The geographic priorities for implementing actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the California clapper rail should be: 1) Gallinas/Ignacio marshes and Napa Marshes, 2) Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 3) Point Pinole Marshes, 4) Highway 37 marshes west of Sonoma Creek, and 5) the Contra Costa County shoreline.
- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species

recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.

- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from potential adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transition habitat.
- Direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).
- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the California clapper rail associated with recreational uses on lands acquired or managed under conservation easements.
- Direct ERP restoration actions towards improving tidal circulation to dikes wetlands that currently sustain partial tidal exchange.
- Direct some habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Monitor to determine use of restored salt marsh habitat by California clapper rails and the rate at which restored habitats are colonized.

REFERENCES

Goals Project. 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. U.S. Environmental Protection Agency, San Francisco and San Francisco Regional Water Quality Control Board, Oakland, California.

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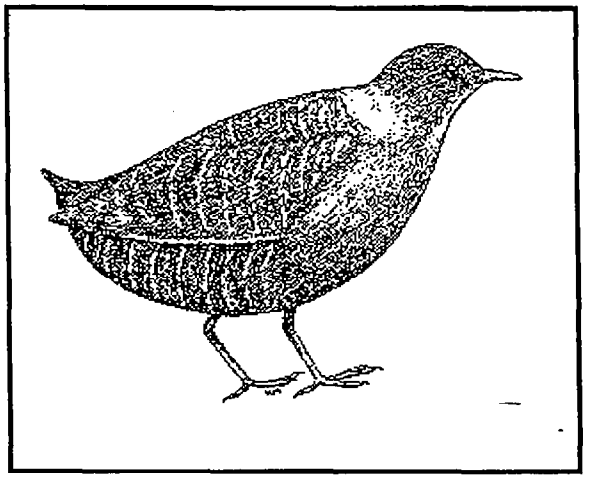
◆ CALIFORNIA BLACK RAIL



INTRODUCTION

The California black rail is a rarely seen, year-round resident of saline, brackish and fresh emergent wetlands and viable populations of the species are found only in the Suisun Marsh, San Francisco Bay, and the Delta. The California black rail is associated with tidal and nontidal emergent wetlands. The population and distribution of this species have declined substantially primarily as a result of reclamation of its wetland habitats. The loss of habitat and declining condition of the species' population have warranted its listing as threatened under the California Endangered Species Act. The major factor that limits this resource's contribution to the health of the Delta is related to the adverse effects of historical and current loss or degradation of salt, brackish, and freshwater marshes.

RESOURCE DESCRIPTION

Historically, the black rail was a resident of coastal wetlands from Santa Barbara County to San Diego County. Much of the California black rail's marshland habitat in California has been destroyed or modified since the mid-1800s. This decline in marshland has reduced population densities of black rail throughout its range.

Important habitats for the species include tidal perennial and nontidal perennial aquatic, dead-end and open-ended sloughs, seasonal wetland and aquatic, saline and fresh emergent wetland, and midchannel islands and shoals. Many tidal habitats, including those that support pickleweed, bulrushes, and saltgrass, are critical types for this species that need to be protected and currently exist as only a small percentage of their historical extent. In addition, upper wetland or upland areas adjacent to these habitat areas provide nesting and escape cover during high tides and floods. Black rails are especially abundant in undiked tidal marshes of Suisun Marsh. They are most often associated with dense stands of American bulrush (*Scripus americanus*) immediately adjacent to high marsh meadows supporting pickleweed-saltgrass associations. They are often associated with soft bird's-beak, an endangered plant of the high tidal marsh.

Black rail habitat is directly influenced by sediment supply from the upstream portion of the Delta and tidal influences from the Bay. As sediment is deposited in a tidal marsh, the elevation of the marsh changes. Eventually, the marsh may no longer be affected by tidal action or support tidal marsh plants which depend on the interaction of compatible tides and sediment supply regimes. Water quality in habitat areas must be sufficiently high to support the invertebrates and vegetation that sustain black rails. Currently, the condition most hazardous to the black rail's existence in salt marshes is the elevated water level associated with the highest tides and high outflow conditions. High water destroys nests and forces rails to leave the marsh temporarily in search of sufficient cover in uplands. Black rails use corridors between wetland and upland habitats to seek cover during high tides. However, these corridors have been fragmented by the extensive system of Delta levees, which are often devoid of vegetation. This lack of sufficient cover subjects black rails to predation, frequently by non-native species. These habitats continue to be threatened by sedimentation, water diversions, recreational activities, and land use practices. Insufficient quantity and quality of emergent wetland habitat is the primary factor limiting recovery of the species' population in the estuary. Other factors that can also adversely affect the black rail include disturbance during its breeding period, contaminants, and excessive predation by non-native species.

VISION

The vision for the California black rail is to contribute to the recovery of this State-listed threatened species and contribute to overall species richness and diversity.

Achieving this vision will reduce conflict between the need for its protection and other beneficial uses of land and water in the Bay-Delta.

Restoring suitable fresh, brackish, and saline emergent wetlands and tidal sloughs in the Bay-Delta and adjacent higher elevation habitats is critical to the recovery of the species in the estuary. These restored habitats would provide refuge for the California black rail during high-water periods. Although the black rail's range extends into other ecological zones, the primary focus for habitat restoration will be in the Sacramento-San Joaquin Delta Ecological Management Zone and the Suisun Marshland Ecological Management Unit in the Suisun Marsh/North San Francisco Bay Ecological Management Zone. Efforts outside the Delta and Suisun Marsh to restore natural tidal action to aquatic and wetland habitats within the Suisun Marsh/North San Francisco Bay Ecological Management Zone would also benefit the species.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Many programs designed to benefit broader groups of fish and wildlife that use or depend on wetlands, sloughs, or adjacent aquatic systems in the Bay-Delta also benefit the California black rail. Some of these are operated by the following organizations:

- Bay Area Wetlands Planning Group,
- California Coastal Conservancy,
- Delta Native Fishes Recovery Team,
- San Francisco Bay National Wildlife Refuge,
- San Francisco Bay Conservation and Development Commission,
- San Francisco Bay Joint Venture,
- San Francisco Bay Regional Water Quality Control Board,
- U.S. Fish and Wildlife Service San Francisco Bay Program, and
- San Francisco Bay Area Wetlands Ecosystem Goals Project.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Restoration and recovery of the California black rail population of the Bay-Delta is integrally linked with wetland and riparian habitat restoration, and water quality (contaminants) improvement.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Maintain the current distribution and existing populations of the California black rail, and reestablish and maintain viable species' populations throughout its historic range in the portion of the Bay Region within the ERP focus area.

LONG-TERM OBJECTIVE: Have self-sustaining populations of California black rail located throughout their original native range in tidal marshes of the Bay-Delta estuary.

SHORT-TERM OBJECTIVE: Restore the population of California black rails to levels necessary to have its status down-graded from a threatened species.

RATIONALE: The California black rail is a state-listed threatened species and is considered a species of concern by the federal government. The leading cause of its decline is the degradation and loss of emergent wetland habitat throughout its range. The California black rail builds nest on the ground and is susceptible to predation by terrestrial species. Non-native species such as the red fox and feral domestic animals (cats and dogs) in some areas have raided nests and contributed to their decline. To develop improve the status of this species, it will be necessary to restore and enhance suitable habitat throughout the wetlands of the estuary. It will also be

very important to develop methods to control the non-native predators.

STAGE 1 EXPECTATIONS: Plans should be developed and implemented to restore and protect emergent wetlands within the Napa and Suisun marshes and along San Francisco Bay; develop strategies for controlling problem predators.

RESTORATION ACTIONS

The general target is to increase the number of breeding pairs of black rail in the Bay-Delta.

General programmatic actions to achieve the target for the California black rail include:

- restore the natural tidal action of aquatic habitats;
- preserve the remaining populations of black rail, tidal slough habitats that support pickleweed, bulrushes, and saltgrass;
- enhance and restore connectivity between tidal sloughs and adjacent upland refugial habitats;
- improve the connection between wetland and upland habitat areas to reduce predation;
- implement management programs for small water diversions, disturbance, land use changes, and contaminants would improve habitat, reproductive potential, and recruitment for black rails;
- protect tidal sloughs and wetlands from adverse land uses;
- protect nearby unoccupied suitable habitat areas would help ensure natural expansion area is available;
- protect of existing suitable habitats by implementing conservation easement purchasing from willing landowners, or establishing incentive programs to maintain suitable habitat;
- develop and implement alternatives to land management practices on public lands that continue to degrade the quality or inhibit the recovery of black rail habitats; and
- restore, protect, and improve emergent wetlands, tidal sloughs, and adjacent uplands.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve California black rail habitat or population targets.

- The geographic priorities for implementing actions to protect, enhance, and restore saline emergent wetlands and associated habitats for the California black rail should be: 1) western Suisun Marsh, 2) Gallinas/Ignacio marshes, Napa Marshes, and eastern Suisun Marshes, 3) Sonoma Marshes, Petaluma Marshes, and Highway 37 marshes west of Sonoma Creek, 4) Point Pinole Marshes, 4) Highway 37 marshes west of Sonoma Creek, and 6) the Contra Costa County shoreline.
- Coordinate protection, enhancement, and restoration of saltmarsh and associated habitats with other federal, state, and regional programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project, and USFWS species recovery plans) that could affect management of current and historic habitat use areas to avoid potential conflicts among management objectives and identify opportunities for achieving multiple management objectives.
- Restore wetland and perennial grassland habitats adjacent to occupied nesting habitats to create a buffer of natural habitat to protect nesting pairs from potential adverse affects that could be associated with future changes in land use on nearby lands and to provide suitable foraging habitat and nesting habitat area suitable for the natural expansion of populations.
- Initial species recovery efforts should be directed to locations where there are immediate opportunities for protection, enhancement, or restoration of suitable habitat.
- To the extent practicable, design dikes constructed in enhanced and restored saline emergent wetlands to provide optimal wetland to upland transition habitat.
- Direct ERP salt marsh enhancement efforts towards existing degraded marshes that are of

sufficient size and configuration to develop fourth order tidal channels (marshes would likely need to be at least 1,000 acres in size).

- To the extent practicable, design salt marsh enhancements and restorations to provide low-angle upland slopes at the upper edge of marshes to provide for the establishment of suitable and sufficient wetland to upland transition habitat. Transition habitat zones should be at least 0.25 mile in width.
- Manage enhanced and restored habitat areas to avoid or minimize impacts on the California black rail associated with recreational uses on lands acquired or managed under conservation easements.
- Direct ERP restoration actions towards improving tidal circulation to dikes wetlands that currently sustain partial tidal exchange.
- Direct some habitat enhancements and restorations towards increasing habitat connectivity among existing and restored tidal marshes.
- To the extent practicable, control non-native predator populations in occupied habitat areas and salt marshes enhanced and restored under the ERP.
- Identify and implement feasible methods for controlling invasive non-native marsh plants.
- Monitor to determine use of restored salt marsh habitat by California clapper rails and the rate at which restored habitats are colonized.
- Acquire conservation easements in occupied habitat areas to adjust grazing regimes to enhance wetland to upland transition habitat conditions.

REFERENCES

Goals Project. 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. U.S. Environmental Protection Agency, San Francisco and San Francisco Regional Water Quality Control Board, Oakland, California.

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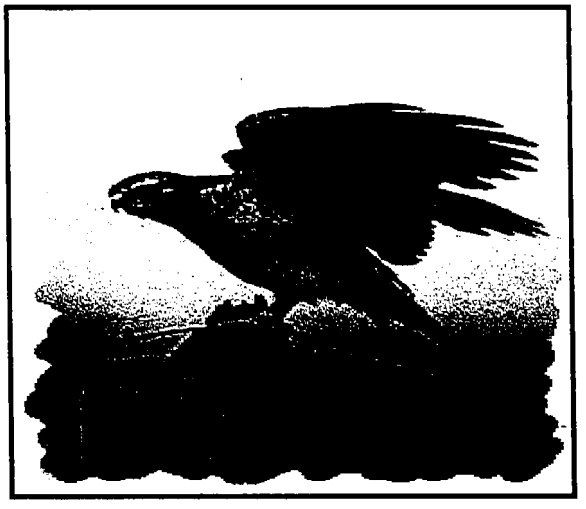
◆ SWAINSON'S HAWK



INTRODUCTION

Swainson's hawks occur throughout the Central Valley where riparian forest and oak savanna habitats are present. The nesting population of the Swainson's hawk has declined substantially, primarily as a result of habitat loss and degradation, reduced reproductive success, and high rates of mortality during migration and on South American wintering areas. The loss of habitat and declining condition of the species' population have warranted its listing as threatened under the California Endangered Species Act. Major factors that limit this resource's contribution to the health of the Bay-Delta are related to adverse effects of habitat loss and degradation, toxic pesticides accumulated in the foodweb on reproduction, human-associated disturbances at nest sites, and increased competition with other species for nest sites.

RESOURCE DESCRIPTION

The Swainson's hawk was common in the Central Valley at the end of the 19th century. Historical populations were estimated between 4,000 and 17,000 pairs, but declines were documented as early as the 1940s. In 1979, 110 active pairs were observed in the Central Valley with estimates of 375 pairs present throughout the State. Today, the few remaining concentrations of breeding pairs are supported within the Yolo, Sacramento, San Joaquin, Sutter, and Colusa counties, with steadily decreasing numbers to the north and south.

Possible reasons for the Swainson's hawk's decline include

- loss or degradation of habitat on the breeding grounds,
- disturbance on the breeding grounds,
- thin eggshells from pesticide residues,
- increased competition with other species, and
- mortality during migration and on the wintering grounds in South America.

To a large degree, the decline of the Swainson's hawk can be attributed to the long-term, cumulative effects of riparian and wetland habitat conversion and degradation. A combination of changes to Central Valley area ecosystems has added to the problem. These changes include:

- the conversion of perennial grassland to agricultural uses, eliminating foraging habitat;
- urban development adjacent to waterways and nesting areas;
- incompatible land use that disrupts breeding and nesting;
- levees and bank protection that eliminate nesting habitat;
- disturbance from human activities near nest sites; and
- contaminants from agricultural runoff and pesticide use.

Excessive harvest of Swainson's hawk on South American wintering grounds is also thought to be a major factor affecting the decline of the species.

Agricultural crops, such as alfalfa, and dryland pasture provide habitat that supports a continual prey base for the Swainson's hawk. A large number of hawks may congregate near farming activities such as mowing, discing, and irrigation where prey, including some agricultural pests such as grasshoppers, is

abundant. Valley oak and riparian woodlands are essential for Swainson's hawk nesting, and 78% of nest trees are located within riparian systems with adjacent foraging habitat. The Swainson's hawk typically returns to the same nest site; therefore, the preservation of nest sites is important to prevent total loss.

VISION

The vision for the Swainson's hawk is to contribute to the recovery of this State-listed threatened species and contribute to the overall species richness and diversity.

Achieving this vision will reduce conflict between protection for this species and other beneficial uses of land and water in the Bay-Delta.

Habitat restoration in the Sacramento-San Joaquin Delta Ecological Management Zone will help achieve recovery of the Swainson's hawk by increasing the quality and quantity of its habitats. Limiting land use changes can help to retain foraging and nesting habitat. Because many agricultural practices are compatible with Swainson's hawk foraging, simply improving the timing of farming activities would further improve foraging habitat.

Strategies could be implemented collaboratively with organizations to improve existing preserves that support Swainson's hawk habitat. Cooperative agreements with land management agencies, conservation easements or landowner incentives will improve land management practices for the Swainson's hawk.

Restoration of habitats proposed in other ecological management zones will also allow Swainson's hawk nesting and foraging habitats to develop elsewhere in the Central Valley.

INTEGRATION WITH OTHER RESTORATION PROGRAMS

Several organizations have plans that indirectly target the Swainson's hawk for recovery through habitat restoration.

- The Riparian Habitat Joint Venture includes 11 federal, State, and private organizations that signed a cooperative agreement to protect and enhance habitats for native land birds throughout California.
- The Putah Creek - South Fork Preserve, which works to increase fish and wildlife populations dependent on riparian and wetland habitats, including species of special concern, plans to restore 130 acres of riparian habitat.
- The Upper Sacramento River Fisheries and Riparian Habitat Management Plan (SB1086) also targets riparian habitat for restoration that will benefit the Swainson's hawk.
- Restoration and strategies should be coordinated with the Swainson's Hawk Technical Group, a group of agency and non-agency specialists dedicated to restoring the health of this species.

LINKAGE WITH OTHER ECOSYSTEM ELEMENTS

Restoration of the Swainson's hawk population is integrally linked with restoration of riparian, grassland, and agricultural habitat in the Central Valley.

OBJECTIVE, TARGETS, ACTIONS, AND MEASURES

The Strategic Objective is to contribute to the recovery of at-risk native species in the Bay-Delta estuary and its watershed.

SPECIES TARGET: Protect, enhance, and increase habitat sufficient to support a viable breeding population. The interim prescription is to increase the current estimated population of 1,000 breeding pairs in the Central Valley to 2,000 breeding pairs. This prescription will be modified based on results of a population viability analysis being conducted by the California Department of Fish and Game.

LONG-TERM OBJECTIVE: Have self-sustaining breeding and wintering populations of Swainson's hawk located throughout their original native range in the Delta and the Central Valley and provide habitat needed to support Swainson's hawks that migrate from overwintering in Argentina.

SHORT-TERM OBJECTIVE: Determine the importance to the species of the small numbers that overwinter in the Delta and determine and develop plans to expand the number of overwintering birds.

RATIONALE: Swainson's hawk is listed as a threatened species by the State of California because its numbers have declined to a small (<2%) percentage of its original population. It nests in riparian areas and forages in upland grasslands and crop lands. The decline has been caused by the combined loss of riparian nesting habitat and foraging habitat and by large mortalities in its overwintering habitat in Argentina. A small number of these hawks overwinter in the Delta rather than migrating, for unknown reasons. If restoration of breeding habitat does not significantly reverse the decline of these birds because of mortality during their long migrations, then there may be a need to find ways to encourage more overwintering in the Delta.

STAGE 1 EXPECTATIONS: A recovery plan for Swainson's hawk in the Central Valley and Delta will have been developed and implemented with key habitats identified and initial protective steps taken.

RESTORATION ACTIONS

The general target is to increase the number of breeding pairs of Swainson's hawks in the Central Valley.

General programmatic actions that will contribute to reaching the targets include:

- protect existing and restoring additional suitable valley oak and other riparian habitats and grasslands;
- improve agricultural land management;
- reduce the effect of factors that can suppress breeding success;
- protect known nest sites from loss, degradation, or disturbance during the entire year;
- increase prey populations (e.g., rodents) necessary to support an expanding population;
- establish buffer zones that eliminate human disturbance during nesting; and
- provide habitat to support increased numbers of Swainson's hawks that migrate from overwintering in Argentina.

MSCS CONSERVATION MEASURES

The following conservation measures were included in the Multi-Species Conservation Strategy (2000) to provide additional detail to ERP actions that would help achieve Swainson's hawk habitat or population targets.

- Proposed ERP actions designed to restore valley/foothill riparian habitat should initially be implemented in the Delta.
- To the extent practicable, design restored seasonal wetlands in occupied habitat areas to provide overwinter refuge for rodents to provide source prey populations during spring and summer.
- To the extent consistent with CALFED objectives, enhance at least 10% of agricultural lands to be enhanced under the ERP in the Delta, Sacramento River, and San Joaquin River Regions to increase forage abundance and availability within 10 miles of occupied habitat areas.
- To the extent consistent with CALFED objectives, manage lands purchased or acquired under conservation easements that are occupied by the species to maintain or increase their current population levels.
- To the extent practicable, manage restored or enhanced habitats under the ERP to maintain desirable rodent populations and minimize potential impacts associated with rodent control.

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Multi-Species Conservation Strategy. 2000. CALFED Bay-Delta Program, Programmatic EIS/EIR Technical Appendix. July 2000.

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